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The first trip was made by the locomotive engine, called the *Hibernia*, and with the many disadvantages attendant on a first starting; the trip from the station-house Salt-hill was performed in fifteen and a half minutes, and again back to Dublin in twenty-three minutes.

A second trip was made by the *Vauxhall* locomotive engine, which performed the journey to Kingstown, in fourteen minutes and a half; and back to Dublin in twenty-two and a half minutes.

Several other trials have since been made with the different engines, which have all proved eminently successful. Having joined in one of these trips, we were delighted by the perfect ease and safety with which it was performed; there is so little motion perceptible even when going at the quickest rate, that we could read or write without the slightest inconvenience.

On the probability of the injurious effects which the success of the railway must have on the drivers of cars and carriages along the present line, much has been anticipated. The following statements, from an address to the citizens of Dublin, by Mr. Classon, on his attempt to establish the omnibus system, on a plan similar to that in which it is carried on in London, are so much in point, that we are induced to copy them. To us they show clearly that the fears alluded to are groundless.

"It is stated that the omnibuses would impair the vested interests of the carmen: now, although I do not admit the principle of vested interests in such a case, I utterly deny that the interests of the carmen would be prejudiced; on the contrary, they would be promoted by the introduction of such vehicles, if the carmen will only themselves do what is right, and meet the matter fairly. In establishing this fact, I may assume it as admitted, that low prices induce consumption; and secondly, as equally true, within certain limits, that in articles of every day consumption, the low price is likely to make most money. Is it not manifest that if I sell in a day six articles at a profit of sixpence each, I make more than if I sell but one article in the day at a shilling? This is precisely the case with the carmen; let them agree among themselves to charge no more than sixpence to a single person for a set down within a mile, and they will get six times their present employment. Were the suggestion acted on, twenty omnibuses in Dublin would only be making customers for the cars, by inducing the walkers to become riders at the low price of two pence each seat, and when people once began to take the indulgence of the omnibus, presently they could not do without the cheap run on the car for the cross line that the omnibus did not go. Indeed, I may, I think, assert, that acting on this acknowledged principle of producing cheap accommodation to the public, each and every carman in Dublin would, at least receive two shillings a day, or fourteen shillings a week, more than they do under the present mode.

"Some time since I heard the following anecdote of the far-famed Mr. Bianconi, who has produced such prodigious public accommodation in the south and west of Ireland, and who has thereby raised himself into great eminence and wealth. In the early period of his operations, he determined to run a well appointed car on a certain road, the population and trade of which line he considered might, if he fixed the fares at a reasonable price, justify the undertaking. He was, however, disappointed; his cars went empty. The genius of Bianconi was not to be baffled by temporary disappointment: he resorted to a fair expedient, and started under another name an opposition car, and ran at a ruinously low price. This at once brought the public on the road. One morning the opposition was withdrawn, the rates were then raised to a fair, though low, remunerating price—the public had tasted the sweets of the accommodation, and this spirited individual lives to enjoy the merited fruits of his triumph. One more case, for the sake of the carmen, which I am the more anxious they should consider, as it is a case that not only applies to the introduction of the omnibus generally, but is analogous to the Kingstown railway, and supposed by some about to destroy all the carmen on the Rock road. It is well known that when the Manchester and Liverpool railway was opened, it was supposed that a great North coach proprietor, who ran several coaches

from Liverpool to Manchester, would be seriously injured on that line, and although he has been obliged to withdraw all his coaches but one from that road, it is a certain fact, and one which was stated by himself some few months since, that so far from the railway injuring his coaching in the district, he had now more coaches, and better returns, by bringing up the crowds that resort to the railway from different points, than he derived from the Manchester coaches before the railway was in operation. Such is the effect of producing cheap and expeditious accommodation to the public."

We have already said it is not our intention to offer an opinion as to the ultimate success of the speculation in a mercantile point of view; at the same time we cannot but heartily wish that the effort may be crowned with the amplest success; and that encouragement thus given to introduce into our island measures which have tended so much to promote the interests and augment the wealth of other portions of Great Britain, may stimulate our moaned men to go forward in many similar undertakings, which shall have the effect of opening up the vast resources of a country rich in mineral wealth, and in those various productions with which the God of providence and of nature has so amply blessed her.

RAILWAYS IN AMERICA.

Perhaps the largest viaduct in the world is that upon which the Columbia and Philadelphia rail-road crosses the river Schuylkill, about three miles above Philadelphia.—At the site of the bridge the stream is about eight hundred and fifty feet wide. On one side the depth of water under the bridge is only four or five feet, but it increases gradually to within twenty yards of the opposite shore, where it is twenty-two feet. The bed of the river is a soft black mud overlaying the solid rock to a depth of from four to ten feet. The bridge consists of seven arches, six piers, and two abutments; five of the arches span 133 feet each, and the remaining two one hundred and twenty-five feet each—making, with the piers, which are thirteen feet broad at top, a total of one thousand and eighteen feet in the clear between the butments.

There are now in the state of New York alone thirty-seven railway companies, all incorporated since the opening of the Liverpool and Manchester railway, whose united capitals make nearly thirty millions of dollars, about six millions sterling.

ANOTHER AERIAL MACHINE.

In addition to the aerial conveyance, which has been so much talked of in Paris, from the idea that a communication may be effected between that city and London in a few hours, another machine, from which still greater expectations are formed, is now exhibiting in the *Chaussée d'Antin*. It is a sort of terrestrial ship, having three masts. With this curious machine, the inventor, M. Harquet, is said to have travelled from Tours to Paris at the rate of about twenty miles an hour. We have heard it stated, however, that there can be little doubt that this project will prove a complete failure.

SIMPLE SCIENCE—ELECTRICITY.

What does electricity, in general, signify? The operations of a very subtle fluid, which rushes through some bodies with inconceivable velocity. What are these bodies called? Conductors. Does the electric fluid stop at some bodies? It does. These are called non-conductors. What are non-conductors? Glass, and all vitrified bodies; diamonds of all kinds; balsamic and bituminous bodies, as resins, wax, amber, sulphur, &c. By rubbing the coverings of animals, such as hair, wool, feathers, silk, bristles, &c., we seem to collect around them an electrical atmosphere, and thus excited, they will attract bodies of the conductor kind, as gold-leaf, &c. What were the ancients only acquainted with? This property of attraction in amber (*electrum*.) Is it found to hold with the other non-conductors? It is; hence

they are also called electrics. Are conductors electrics? No; they are called non-electrics. Will the rubbing or excitation of these collect or agitate the electrical fluid? No; but if suspended by hair or silk cord, or supported by glass or any of the electrics, at a distance from the wall, floor, &c., (which latter are conductors, and communicate with the earth,) they may be charged with positive or negative electricity, as it is called. What are the conductors or non-electrics? All metals and the greatest part of minerals. Is water a conductor? Yes; and all aqueous and spirituous liquors, and whatever contains in them any of these; as living creatures and animal substances; as leather, bones, shells, &c.; trees and plants; thread, paper, &c. Will glass or any of the electrics become conductors? Yes; when they are moistened; and will not collect the electrical fluid till wiped or dried.—Heat also makes electrics become conductors; while water, being frozen, becomes an electric. When are we insulated? By being placed on a cake of resin, a piece of glass, or on a stool of baked wood, with glass supporters; by the interposition of these electrics or non-conductors between us and the earth, the communication between the electric fluid in our bodies and that in the earth is cut off. When are we negatively electrified, and when positively? Under the above circumstances, the experimenter, by means of his machine, draws from us the electric fire in our bodies; or he charges us with still more of the fire. If a person standing on the floor, touch us at a time when we are negatively electrified what would be the consequence? The fire would be drawn from the earth by our bodies, and rush through him as a conductor; a spark will be seen and heard between us, and both he and we shall feel it. When positively electrified, what is the consequence? The same effects as before, except this difference, the fire will be drawn from us through his body, and pass into the earth, and thus the equilibrium will be restored as before. There are fishes that have the power of giving a shock from their own bodies. Is electricity ever used medically? Yes; streams, sparks, and shocks are all applied to the human body, and have been thought to be very efficacious in removing obstructions, and in rheumatic, paralytic, and inflammatory cases; the most certain or unequivocal appearance of advantage derived to man from the study of electricity, is the protection from lightning, which he obtains by means of (iron) or what is still better, copper rods, raised above the highest part of his house, and extending along the outside down into the ground.

A. G.

KINGSTOWN.

Several circumstances have conduced to render Kingstown a place of considerable notoriety. It was from this place his Majesty, George IV. embarked in 1821; and to commemorate this memorable event, a handsome obelisk, with a suitable inscription, surmounted by a crown; of mountain granite, has been erected on the spot. In order to keep in eternal remembrance the gracious visit of his Majesty to Ireland, the name of this village was changed from Dunleary to Kingstown. The Asylum Harbour will be found well worthy of examination; towards its construction, parliament advanced £505,000, to be repaid by certain duties to be levied off the vessels coming into the harbour. The first stone of this immense work was laid in 1817, by Lord Whitworth, then Viceroy of Ireland.*

The pier extends 2,800 feet, and is at the base two hundred feet in breadth; it terminates in a nearly perpendicular face on the side of the harbour, and an inclined plane towards the sea. A quay fifty feet wide runs along the summit, protected by a parapet eight feet high on the outside; there is a beacon to mark the harbour. Close to the pier-head, there is twenty-four feet depth of water, at the lowest springs, which it is calculated will allow a frigate of 36 guns, or an Indiaman of eight hundred tons, to take refuge within its enclosure; and at two hours flood there is water sufficient to float a seventy-four. To-

wards the shore, the depth gradually lessens to fifteen or sixteen feet. The crowning point of all, however, has been the construction of the railway.

By some, the surrounding scenery has been considered as fine as that which presents itself on entering the bay of Naples. The bay of Dublin is bounded on the north by the bold peninsula of Howth, distant from Dublin about seven miles, and on the south, by a small rocky isle, called Dalky,* separated from the mainland by a deep navigable channel, and crowned at its highest elevation by a Martello tower. The breadth of the bay between these two points is about six and a half miles. Over the low, sandy isthmus of Howth, towers the rocky and picturesque isle, called Ireland's Eye—and beyond that, at a greater distance, the Isle of Lambay. The remainder of the shore on the northern side is low, but all along thickly studded with white-washed houses, placed singly or in groups to the water-side, from whence a fine country swells into gently rising eminences, clothed with wood and intermingled villas, till the view is lost in the distant horizon.

On the south side, the first objects which meet the view are the Rochetown hills, whose rocky eminences terminate in three summits, several hundred feet higher than the bay. On the northern summit is one of the signal towers of the telegraph; a little below the southern summit a Martello tower commands Killiney bay; and the central and highest summit is crowned with an obelisk. The whole line of coast is rocky and dangerous, but richly ornamented with crowded villages. Behind these, the eye wanders over a delightful variety of villas, woods, and pastures, gradually rising, with easy ascent, from one degree of elevation to another, until terminated at length by the picturesque back ground formed by the Sugar-loaf, and the other Wicklow mountains, which are seen extending themselves in a south-westerly direction, as far as the eye can reach.

The light-house, however, which will be perceived standing apparently in the centre of the bay, is an object worthy of inspection. It is an elegant piece of architecture, three stories high, surmounted by an octagonal lanthorn, which is lighted by oil lamps, aided by reflecting lenses. It was erected by Mr. Smith, in 1782, and affords a striking proof that the greatest difficulties may be overcome by genius and perseverance. A stone stair-case, with an iron balustrade, winds round the outside of this extraordinary building, terminating in an iron gallery, which surrounds it at the upper story. This useful and ornamental structure stands at the extremity of a range of building, called the South-wall—which was erected for the purpose of securing the harbour against the sands of the South-bull. The building of this wall was commenced in 1748, and is constructed of large blocks of granite, strongly cemented, and fastened together with iron cramps. It runs in a straight line into the sea the astonishing length of 17,754 feet, or nearly three English miles and a half.

About mid-way on this wall, a fort or battery has been constructed, called the Pigeon-house. The pier at this point is two hundred and fifty feet wide, and on it are built a magazine, arsenal, and custom-house. It is considered a place of great strength, being surrounded with heavy cannon, and commanding the bay in various directions.

From Killiney-hill, about three miles distant, the harbour appears to great advantage. The peninsula of Howth, Lambay, Ireland's Eye, the island of Dalky, and Bray Head, which rises 807 feet above the level of the sea, are also to be seen with much effect from this point. The scenes which here present themselves are altogether of the very finest description.

* The island of Dalky contains about eighteen acres of marsh land. It was formerly dedicated to St. Benedict, and there are still to be seen on it the ruins of a church. In modern times it has been resorted to for purposes of sport and pleasure. Not long since it was the custom annually to elect a mock king here, with the various officers of state, whose proceedings were recorded in a newspaper, called the Dalky Gazette; this practice has for some years been discontinued.

* See "Picture of Dublin," published by Curry and Co.